Air Force SBIR **Impact**

Miniaturization of Laser Radar Seeker Results In Improved Imaging Laser Radar Systems

Company:
Burns Engineering Corporation

Location:
Orlando, FL

Employees:
12

President:
Hoyt N. Burns, P.E.

Project Officers:
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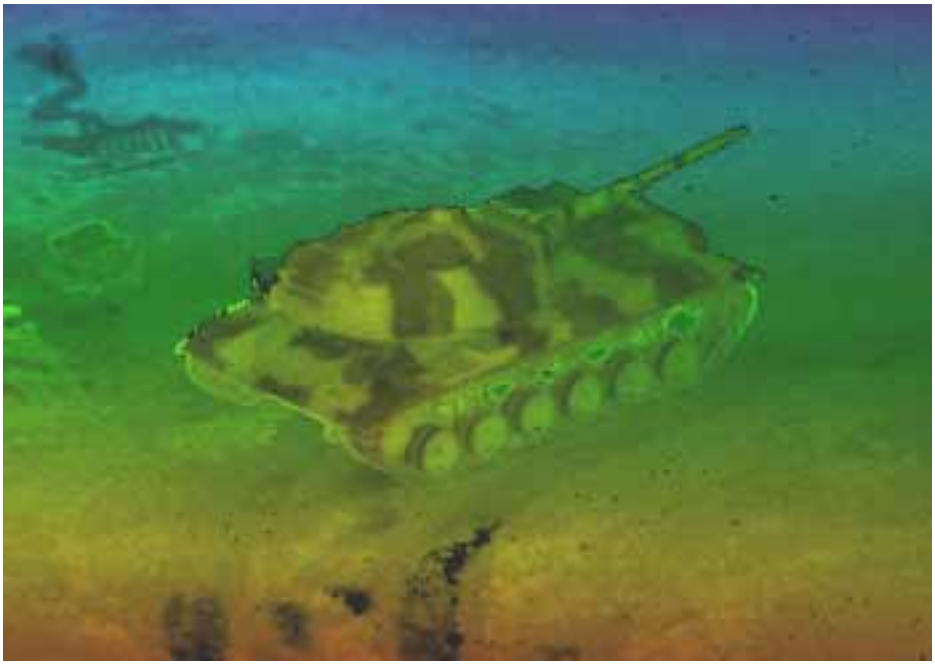

Air Force Requirements:

The Air Force needs improved seekers for the next generation, laser-guided "smart" weapons. The seeker has to be very compact and rugged, low cost, and yet high performance.

SBIR Technology:

Working with the Air Force under a Small Business Innovation Research Program (SBIR), Burns Engineering investigated the application of new integrated circuit and fiber optics technologies to the miniaturization of the laser radar seeker. Combining emerging technologies from a diverse group of industries, Burns Engineering developed the Multichannel Optical Receiver Photonic Hybrid (MORPH), the centerpiece of a new family of high performance imaging laser radar systems. The MORPH measures the time of flight of the laser pulses to an accuracy of less than a billionth of a second. Fiberoptic waveguides transport the laser signals between the weapon's optical and electronic systems. Using the MORPH technology, Burns Engineering produced a high performance imaging laser radar receiver which fits in the palm of your hand.

For more information on this story, contact Air Force TechConnect at 1-800-203-6451 or at www.afrl.af.mil/techconn/index.htm

Company Impact:

The MORPH palm technology found immediate military applications. MORPH technology has been delivered to the US Army Aviation and Missile Command (AMCOM, Redstone Arsenal), and to Raytheon, for the US Navy's Land Attack Standard Missile. Hundreds of units are currently in production for submunition fuzing applications for the Air Force. NASA's jet propulsion laboratory is evaluating the MORPH for automated landing of the next Mars probe. The high resolution, 3-D images generated by the MORPH provide images in daylight or darkness, at faster frame rates than a television camera. Thus, the new laser radar system can be used as an automated guidance and collision avoidance system on a variety of vehicles. Currently Burns Engineering has had over 1.7 million dollars in contracts for the MORPH palm technology.

There are numerous civilian applications of the MORPH technology as well. Burns Engineering is now applying the MORPH technology to security and surveillance, as well as for ground vehicle and civilian airborne collision avoidance systems.

Company Quote:

"The SBIR program has allowed us to take risks that we could not otherwise justify due to our small size. This product will add a vital new capability to our military weapon systems, and in the future we envision it guiding our automobiles and keeping our homes and workplaces safe."

Hoyt N. Burns, P.E.
President
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SBIR

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